PROGRESS REPORTS

FROM

EXPERIMENT STATIONS

SEASON 1956-57

KENYA

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PROGRESS REPORTS FROM EXPERIMENT STATIONS

The reports for the seasons up to and including 1950-51 were published in seasonal volumes; the following are still in print and available at 3/- per volume post free.

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KENYA

PROGRESS REPORT FOR THE SEASON 1956-57

	Nyanza Province	*Coast Province*
Planting period	May to August	Mid April to mid June
Picking period	December to early March	October to mid January
Close season	Early March and April	From mid February

NYANZA PROVINCE

Cotton Experiments.

BY

M. S. HASTIE.

Introduction.

During the past season a new cotton sub-station to replace Bungoma has been laid out at Busia in Elgon Nyanza and most of the farm buildings have been completed. At Kibos, a new workshop has been added and the ginnery extended to accommodate a Middleton double roller gin of the late 4A type and a Platts double cylinder seed cotton opener, No. 3 hopper type. These new machines are to be used for instructional purposes. It is intended that fitters from all Nyanza ginneries should come for a short course before each season starts. By this means it is hoped to improve the standard of ginning and also to encourage local Africans to become fitters; this has been in the past almost exclusively an Asian trade.

Visitors to the Cotton Experiment Station, Kibos, during the season, included Mr. J. C. May, C.M.G., O.B.E.; Mr. G. W. Nye, C.M.G., O.B.E., Agricultural Adviser to the Secretary of State for the Colonies; Dr. P. O. Wiehe, Director of the Sugar Research Institute, Mauritius; Mr. A. R. Melville, Chief Research Officer, Agricultural Department, Kenya; Mr. A. E. H. Higgins, Officer-in-charge Colonial Spraying Machinery Pool, England; Mr. N. Wright, Fernhurst Research Station, England; Dr. R. Le Pelley, Senior Entomologist, Kenya.

Mr. T. H. Coaker of the Cotton Research Station, Namulonge, and Mr. T. J. Crowe visited Coast Province in September and reported on

insect damage on the cotton. Mr. M. S. Hastie and Mr. T. J. Crowe visited Namulonge during the season.

Mr. M. S. Hastie went on overseas leave in April 1956 and returned in September. Mr. T. J. Crowe went on overseas leave in January 1957.

Rainfall.

TABLE 1.

RAINFALL IN INCHES.

Month	*Elgon Nyanza Itesio Leprosarium*	*Central Nyanza Kibos Main station*	*South Nyanza Homa Bay Cotton substation*
April 1956	15·63	4·95	9·73
May	8·30	3·54	13·66
June	2·47	5·77	2·77
July	0·94	0·72	4·19
August	2·28	4·51	5·22
September	5·02	4·54	1·67
October	6·41	0·77	2·93
November	2·23	1·67	1·96
December	4·14	4·56	1·63
January 1957	4·69	3·31	2·66
February	5·30	2·75	1·86
March	6·59	2·58	4·67
Total	64·00	39·67	52·95

The distribution of rainfall in the cotton areas was somewhat localized. In Elgon Nyanza a dry spell in June, July, and part of August caused cotton growers who had not planted before this period to wait until September before planting. Similarly, in Central Nyanza the poor main rains in April and May, and the dry July, resulted in most of the cotton being planted in August and later. A good proportion of the cotton crop in South Nyanza was planted in July in spite of the good rains of April and May. Unless pressure is put on growers each season they tend to wait for favourable rains late in June or July and the size of potential crop is dependent on the unreliable rains of October, November and December. Picking is consequently late and, as happened this year, some of the crop may be spoiled by unseasonal rain in January, February and March.

Cotton Crop.

A comparison of the 1956-57 crop with that of the previous season is given in Table 2.

TABLE 2.

COTTON PRODUCTION IN NYANZA BY GINNERIES.

	Acreage	*Total 400 lb. bales*	*% BR*
1955-56			
South Nyanza:	16,000		
Homa Bay		2,178	21·3
Central Nyanza:	30,000		
Kibos		403	27·3
Ndere		2,451	14·7
Ukwamba		3,645	9·6
Elgon Nyanza:	20,000		
Nambare		2,271	8·1
Malakisi		1,020	7·4
	66,000	11,968	12·7
1956-57			
South Nyanza:	12,000 (25%)		
Homa Bay		1,643 (25%)	8·9
Central Nyanza:	29,000 (3%)		
Kibos		401	19·7
Ndere		993 (46%)	14·0
Ukwamba		2,126	5·5
Elgon Nyanza:	14,400 (28%)		
Nambare		1,506 (30%)	6·6
Malakisi		792	7·6
	55,400 (16%)	7,461 (38%)	9·1

Percentages in brackets are decreases compared with 1955-56. The figure of 20,000 acres in Elgon Nyanza is a revision of the total of 30,000 acres given in last year's report, which is now considered to have been an overestimate.

There was an overall drop in acreage this season; in both South and Elgon Nyanza the reduction in production closely followed the drop in acreage, but in Central Nyanza there was a considerable decrease in yield per acre which can be attributed to poor rains and late planting.

A considerable improvement in ginning was achieved at most ginneries and, with one exception, all received bonuses as paid under the Kenya Cotton Incentive Scheme. The prices paid to growers remained the same as for the previous season, 55 cents per lb. for A grade seed cotton and 20 cents. for B grade. Buying started at the beginning of December throughout the Province and closed in March.

Disease.

Bacterial blight (*Xanthomonas malvacearum*) remained the most serious disease and was general throughout the cotton areas. Wilt (*Verticillium dahliae*) was found in several shambas in Central and South Nyanza as well as on the Cotton Experiment Station, Kibos.

District Trials, 1955-56.

In the Progress Report for the 1955-56 season it was not possible to include results of district trials, and these are given below. Spacing throughout these experiments was: rows 3′ apart, holes 2′ apart in row, 2 plants/hole.

Table 3.

Variety Trial, 1955-56.

Randomized blocks with 6 replications. Plot size 1/82·5 acre. Tied bench ridges. Seed dusted with Perenox. No differences significant.

Yields in lb./acre seed cotton.

Variety	Bomala	Malakisi	Mundika	Funyula	Average
S47	553	518	715	556	585
DE715/6	536	529	739	471	569
Date of planting	23.6.55	24.6.55	23.6.55	2.6.55	—

The object of the variety trial (Table 3) was to compare the varieties S47 and DE715/6 with a view to using the latter to replace the former as the commercial variety in Central and Elgon Nyanza. S47 has been deteriorating as a variety in recent years. Its ginning outturn has fallen and this appears to be related to the greater frequency with which black naked seeds occur. In addition, the lint of this variety produces large numbers of motes when spun, owing to weak chalazal ends of the seed which break off in ginning. DE715/6 has some *Verticillium* resistance and produces yarn with a better appearance than S47.

The results of this trial show no significant differences in seed cotton yields but the improved disease resistance and yarn appearance of DE715/6 tend to favour its replacing S47 in the two districts concerned in Nyanza.

Table 4.

Date of Planting Trial, 1955-56.

4 × 4 Latin square. Plot size 1/37·8 acre. Tied bench ridges. Seed dusted with Perenox.

Yields in lb./acre seed cotton.

Date of planting	Matayos	Bomala	Nambare	Mundika	Average
23.5.55	538	425	881	924	692
23.6.55	441	283	408	517	412
23.7.55	389	229	342	397	339
23.8.55	328	210	274	238	262
S.E.	21·5	13·2	36·6	54·4	—
L.S.D. (P=0·05)	74	45	126	188	—

TABLE 5.

DATE OF PLANTING TRIAL, 1955-56.

Plot size 1/37·8 acre. Variety S47. Seed dusted with Perenox.

Yields in lb./acre seed cotton.

MALAKISI		FUNYULA	
Date of planting	Yield	Date of planting	Yield
1.6.55	756	13.4.55	744
1.7.55	690	25.5.55	721
30.7.55	242	6.7.55	513
31.8.55	266	17.8.55	343
S.E.	25·7	S.E.	71·5
L.S.D. (P=0·05)	89	L.S.D. (P=0·05)	215
Design	4×4 Latin square	Design	Randomized blocks 6 replications
Cultivation	Tied bench ridges	Cultivation	Flat

Administrative reorganization of what was formerly North Nyanza resulted in some delay in obtaining experimental land for the date of planting trials (Tables 4 and 5). Consequently, most of the earliest dates of planting were really later than intended, although they do give a good comparison of the usual dates of peasant planting with those slightly earlier. In the Elgon Nyanza trials the planting dates were approximately one month apart, while those at Funyula in Central Nyanza were at 6-weekly intervals. The final planting dates were fairly close.

Delay in planting gave progressively lower yields throughout; it would appear that if growers planted the greater part of their cotton in May, yield increases could be obtained.

DISTRICT TRIALS, 1956-57.

TABLE 6.

DATE OF PLANTING TRIAL, 1956-57.

4 × 4 Latin square. Plots 1/45·4 acre. Tied bench ridges. Variety S47. Seed dusted with Perenox.

Yields in lb./acre seed cotton.

Date of planting	Nambare	Adungosis	Mundika	Funyula	Bunyala	Average
2.4.56	485	711	1001	1012	1091	860
14.5.56	513	740	901	1140	1290	916
25.6.56	246	621	414	536	382	439
6.8.56	147	232	286	204	243	222
S.E.	25·7	67·4	54·5	135·5	69·9	
L.S.D. (P=0·05)	89	233	166	469	242	

In the date of planting experiments (Table 6) the plantings of April and May at Mundika, Funyula, and Bunyala significantly outyielded the June and August plantings. At Nambare and Andungosis the yields of April, May and June plantings were

significantly better than that of August. At the former, April and May yields were significantly better than that of June.

These results bear out the previous season's findings, but it is interesting to note that with one exception the May planted cotton yields are slightly better than those of April. At Funyula last season, the only site at which April planting was carried out, this did not occur and it may, therefore, be a seasonal effect.

TABLE 7.

VARIETY TRIAL, 1956-57.

Randomized blocks of 6 replications. Plots 1/90·8 acre. Flat cultivation.

Yields in lb./acre seed cotton.

Variety	Nambare	Adungosis
S47	479	718
DE715/6	400	627
*Uk51	471	748
Uk48	289	627
S.E.	37·7	25·3
L.S.D. (P=0·05)	113	76
Planting date	25.4.56	5.5.56

*Acid treated seed.

In the variety trials at Nambare and Adungosis (Table 7), S47 and Uk51 significantly outyielded Uk48, and at the latter site they were also significantly better than DE715/6. All the varieties were seed treated with Perenox except Uk51, which had been received from Ukiriguru and had been acid treated. The latter germinated faster and grew better in the early stages than the other varieties.

TRIALS AT THE COTTON EXPERIMENT STATION, KIBOS, 1956-57.

In this year's variety trial at Kibos there were no significant differences in yield between the local commercial variety S47 (359 lb./acre seed cotton), and DE715/6 (350 lb.), Uk51 (371 lb.), and UPA (375 lb.)

In a manurial trial, with tied bench ridges, differences were not significant, amounts of FYM per acre and seed cotton yields being as follows: none—740 lb., 5 tons—809 lb., 10 tons—802 lb., 20 tons—872 lb., 40 tons—882 lb. Variations in fertility and insect incidence appear to have been responsible for the levelling out of yields. The heavier manurial treatments produced considerably better growth than the control but the effect is not shown in the final yield figures.

Entomology.

BY

T. J. CROWE

(This report is included by courtesy of the Kenya Government.)

Introduction.

A pest survey on the lines indicated in the 1954-55 report was made for the third and final season. The variation in mean annual rainfall from less than 30″ to more than 70″ in different parts of the Nyanza cotton area naturally results in considerable ecological diversity and it has proved, and will prove, very useful to be familiar with the range of possibilities when planning experimental work. Nevertheless, the value of such a survey on peasant-grown cotton is restricted by the fact that, at present, only a minute proportion of the crop is planted in what are considered the optimum months.

The division of the Province into three main zones, Luo-Suba, Samia, and Elgon, has stood the test of three seasons and the rest of this report is written under these headings.

Projects started this season but not reported in detail include studies of alternative stainer hosts and the biology of the mimic stainer predator, *Phonoctonus*.

Luo-Suba (Lake Shore) Zone.

Stainer (*Dysdercus* spp.) populations rose as high as 8,000 adults per acre, but this was very late in the season. At the time when the crop was most susceptible to attack, numbers were below average. 55% of those collected were *D. superstitiosus,* and 43% were *D. nigrofasciatus*. *Lygus* damage was lower than in previous seasons, building up to a peak leaf grade of 1·1 (maximum = 4) in September. Bollworm (*Heliothis armigera*) caused the damage most commonly seen on shed buds and bolls. Red spider mites were common enough on a few, unsprayed, plots to cause noticeable leaf damage.

A pest assessment trial was planted at Kibos. The plots were single rows 50′ long in a matrix of unsprayed cotton. To overcome as far as possible the perennial Kibos hazard, patchy drainage on the black clay soils, fifteen replicates were planted and three were discarded before spraying began because of their uneven stand. Yields and other data are shown in Table 8.

TABLE 8.

PEST ASSESSMENT TRIAL, KIBOS.

Variety—S47. Planting date—April 7th. Layout—randomized blocks. Replications—12. Plot size—3′ × 50′. Spray—0·1% DDT + 0·025% BHC applied to run-off every 5 days.

Spray period	*Yield lb. s.c./acre*	*% Safi*
July 21st-September 8th	793	57·6
August 15th-October 3rd	724	61·2
September 9th-October 28th	700	63·3
Control	568	60·1
L.S.D. (P=0·05)	127	N.S.

Each boll was examined for insect damage when it was picked and from the data accumulated the following figures were calculated:

Potential yield with optimum pest control ..... 1,014 lb./acre
Cash losses due to pests causing shedding (*Lygus, Heliothis,* etc.) ..... 53·0%
Cash losses due to pests carrying *Nematospora* (*Dysdercus,* etc.) ..... 27·3%
Cash losses due to bollworms in large bolls, (*Platyedra,* etc.) ..... 12·4%

These percentages assume optimum control of other groups. They are not, therefore, additive. The overall yield was low owing to poor drainage over the whole of eight blocks. Stainers caused as high a proportion of stained cotton as last year, but fewer locules were totally destroyed by them.

The main dusting experiment in the district consisted of a randomized block with each replicate at a different site, the sites being scattered right round the Kavirondo Gulf. Eighteen replicates were planted. Four were discarded owing to error or damage. On two others it was correctly predicted, before dusting began, that it would not give an economic return and, though they were dusted to check the accuracy of the prediction, they are not included in the analysis. Yields and other data for the remaining 12 are shown in Table 9.

TABLE 9.

LAKE SHORE AREA—DUSTING TRIAL.

Plot size—36′ × 44′. Planting date—1st week April. Dust—3% gamma BHC + 10% DDT. Dusting began on 28th July. All plots were separated by barriers of dwarf sorghum.

Treatment	*Interval*	*Yield lb. s.c./acre*	*% Safi*
8 × 10 lb. dust	6 days	976	76·3
5 × 16 lb. dust	10 days	1,085	67·2
Control		679	56·0
L.S.D. (P=0·05)		213	7·8

Samia.

In this area the pest species were the same as in the Luo zone but populations were generally much lower. The rainfall, however, was better distributed and though boll shedding was less, a high proportion of sheds were damaged by insects.

No spraying trials can be attempted in Samia until trained staff are posted there. Experimental work was confined to routine pest counts on two date of planting trials. Some details of these trials analysed as one experiment are shown in Table 10.

Table 10.

Date of Planting Experiments—Samia.

Layout—two 4 × 4 Latin squares. Plot size—24′ × 40′.

Planting date	*Yield lb. s.c./acre*	*% Safi*
April 2nd	1,065	79
May 14th	1,215	84
June 25th	459	78
August 6th	234	87
L.S.D. (P=0·05)	124	N.S.
(P=0·01)	174	N.S.

Lygus attack was light, leaf grades never exceeding 0·9 per leaf. There was some indication that *Heliothis* caused loss of crop on the early plantings. Nevertheless, yields of timely planted cotton on plots of only moderate fertility were satisfactory and suggest that the gap between potential and actual yield is not so great in this area as in other parts of Nyanza. More than half the staining on all plots was caused by *Xanthomonas*.

Elgon Nyanza.

Lygus damage was fairly severe on timely planted cotton, leaf grades up to 2·9 being recorded. The bulk of the peasant-grown crop, however, being planted after the June-July drought, tended to escape damage but yielded poorly owing to lack of rain. Pink bollworm (*Platyedra gossypiella*) caused only slight damage to early planted cotton but on the later plantings the last bolls to mature had more than 25% infested locules. Stainer numbers were very low and, apart from sporadically severe *Helopeltis* attack, no other pest caused serious damage in this zone.

A further experiment using the single row design was planted on the Bungoma farm to determine potential yield in the presence of optimum *Lygus* control. FYM (20 tons/acre) and double superphosphate (1 cwt./acre) were applied to all plots before planting, to boost the very low fertility. Yield data are shown in Table 11.

TABLE 11.

POTENTIAL YIELD TRIAL—BUNGOMA.

Variety—S47. Planting date—May 4th. Layout—randomized blocks. Replications—8. Plot size—3′ × 50′. Spray—0·1% DDT + 0·1% toxaphene applied to run-off every 5 days.

Spray period	*Yield lb. s.c./acre*	*% Safi*
July 21st-September 8th	912	59·9
August 15th-October 3rd	693	44·2
September 9th-October 28th	534	59·0
Control	273	58·5
L.S.D. (P=0·05)	191	N.S.
(P=0·01)	260	N.S.

Stainers were not in evidence till the very end of the season. Most stained cotton was due to bacterial blight, which was present in all phases and caused considerable distortion of the plants.

Dusting trials similar to those in the Lake Shore area were also planted in Elgon, the chief difference being that the insecticide used was 10% DDT. Very few of these trials were correctly harvested but the results were consistent enough to be statistically significant (Table 12).

TABLE 12.

ELGON NYANZA DUSTING TRIAL.

Planting date—1st week May. Plot size—36′ × 44′. Dusting began on September 4th.

Treatment	*Interval*	*Yield lb. s.c./acre*	*% Safi*
8 × 10 lb. 10% DDT	6 days	761	71·1
5 × 16 lb. 10% DDT	10 days	578	71·3
Control		450	66·7
L.S.D. (P=0·05)		225	N.S.

COAST PROVINCE

(The experiments described below were performed by Mr. W. A. Wright, Agricultural Officer (Experiments) Coast Province, and this report is compiled from information supplied by him and the Provincial Agricultural Officer, Coast Province. It is published by courtesy of the Kenya Government.)

INTRODUCTION.

Development and clearing at Msabaha, near Gede, were sufficiently far advanced for cotton experiments to be started on this new station.

TABLE 13.

RAINFALL IN INCHES, 1956.

Month	*Gede*	*Malindi*
January	4·08	1·15
February	—	0·04
March	0·90	0·27
April	9·35	7·52
May	6·31	9·64
June	7·86	7·46
July	3·53	2·60
August	0·67	0·45
September	1·04	0·84
October	0·40	1·42
November	1·25	0·90
December	1·80	0·48
Total	37·19	32·77

Up to mid July the rains in the main cotton areas, around Gede and Malindi, were very satisfactory but there was a marked drop during the period mid July to September.

Total production for the 1956 season (in bales of 400 lb.) was 722 bales, of which 360 bales were AR and 362 BR. Although there was a considerable amount of stain in the seed cotton, the severity of inspection was such that much of what would previously have been allowed as A grade was put into B grade.

The variety grown was again N17 and the seed was not dusted against bacterial blight infection as it is felt that this is unnecessary. Next season Uk51 from Tanganyika will replace N17 as the commercial variety in Coast Province.

The standard practice of intercropping cotton with maize continues. This season the maize grew well and greatly depressed cotton development. Unfortunately, the rains more or less terminated in mid July and the cotton crop had little chance to recover, and consequently yields were low.

The prices paid to growers were 54 cents. per lb. for A grade seed cotton and 20 cents. for B grade.

RESULTS OF EXPERIMENTS.

Cotton Research Station, Msabaha.

In the variety trial (Table 14) both the Uk varieties significantly outyielded 47/10 and N17, and Uk51 gave a better yield than Uk48. (The land on which this trial was planted varied in fertility. An adjustment of means for fertility variation within the experiment makes these results more clear-cut.) The trial shows that the decision to change to Uk51 is sound.

The jassid resistance of Uk51 and Uk48 was highly satisfactory and apparently sufficient for coastal requirements.

Both Uk51 and 47/10 had been acid treated and they germinated at least one day earlier than the other two varieties. All seed was treated against bacterial blight.

TABLE 14.

VARIETY TRIAL.

Randomized blocks of 6 replications. Plot size 1/45·1 acre. Flat cultivation. Spacing—rows 3′ apart, holes 1½′ apart in rows, 2 plants per hole. Planted mid May.

Yields in lb./acre seed cotton.

Variety	Yield
*Uk51	640
Uk48	577
*47/10	469
N17	417
S.E.	29·7
L.S.D. (P=0·05)	90

*Acid treated seed.

TABLE 15.

DATE OF PLANTING AND MULCH TRIAL.

Randomized blocks of 4 replications. Plot size 1/20·17 acre (split plots 1/40·34). Flat cultivation. Spacing—rows 3′ apart, holes 1½′ apart in rows, 2 plants per hole. Variety Uk48.

Yields in lb./acre seed cotton.

Date of planting	Mulched	Unmulched	Means
7.4.56	636	909	773
17.4.56	823	846	835
30.4.56	454	643	549
14.5.56	387	386	387
Means	575	696	
Marginal means	Date of planting:	S.E. = 40·6	
		L.S.D. (P = 0·05) = 130·0	
	Mulched v. unmulched:	S.E. = 19·5	
		L.S.D. (P = 0·05) = 60·0	
Treatment means	Mulched v. unmulched within same date of planting:	S.E. = 37·0	
		L.S.D. (P = 0·05) = 114·0	
	Date of planting within the same mulched/unmulched treatment:	S.E. = 81·5	
		L.S.D. (P = 0·05) = 183·0	

In the date of planting and mulch trial (Table 15), each date of planting was split, one half being mulched with dried grass to a depth of 4″ approximately one week before planting, and the other half being left unmulched.

In the early stages the mulched cotton had a poor stand and growth, and the plants were pale in colour. These features were particularly striking in the two later mulched plantings. Great difficulty was encountered in maintaining the 4″ mulch in the early period of this experiment, and by mid July much of the trash had disappeared. After July the colour of the plants in the mulched plots was darker than in the unmulched.

In the mulched plots, the mid April planting was significantly better than the other three plantings. The early April planting significantly outyielded the mid May planting. In the unmulched plots the yields from the first and second plantings were significantly higher than from the later plantings. The late April planting was significantly better than the mid May plots.

In the comparison of the mulched and unmulched plots of the same planting dates significantly better yields were obtained from the unmulched in the early and late April plantings, but at the other dates differences in production were very slight.

When the marginal means are compared the two early plantings were significantly better than the other two and the late April plots significantly outyielded the mid May plots. The mean of the unmulched plots was significantly higher than that of the mulched.

A cultivation and spacial trial (flat at 3′ × 1½′ spacing and tied ridges of various sizes at several spacings) was sited on newly ploughed land after clearing from an indefinitely long period in secondary bush and grass. Soil fertility was very variable and there were no significant differences, yields ranging from 527 lb. to 698 lb. seed cotton per acre.

The ridges did not stand up to the rain well, especially the 3′ ridges. Cotton on the larger ridges, especially the 4½′ ridges, with one row per ridge, appeared better grown than on the flat or the 3′ ridges, but the effect was never outstanding.

In a trial comparing 3 varieties at 3 planting dates and 3 spacings, the planting dates and average yields in lb. seed cotton per acre were: 24th April, 732; 4th May, 626; 14th May, 589. The difference between the first and last dates was significant.

Yields were unaffected by spacings within the row of 1′, 1½′ and 2′. Uk51 (which was acid treated) yielded significantly better than Uk48, the increase being 146 lb. seed cotton per acre.

The effect of jassid was not generally severe, Uk51 being most resistant, followed by Uk48, with N17 least resistant.

The site of this experiment was similar to that of the previous trial and there was quite a marked variation in fertility over the area. Cultivation was on the flat and no fertiliser or manure used. The general level of fertility of this site appeared rather low.

An intercropping trial compared pure stand maize and pure stand cotton (½ plot each, planted at dates calculated to give optimum yields),

and early medium and late planted maize intercropped with cotton planted at the usual date for the area. Yields are shown in Table 16.

TABLE 16.

MAIZE/COTTON INTERCROPPING TRIAL.

Randomized blocks of 4 replications. Plot size 1/25·9 acre. Flat cultivation.

Treatment	*Yields lb. per acre*	
	Seed cotton plus maize	
Pure stand	281	871
Maize interplanted: early	176	1,301
medium	93	1,164
late	137	590
S.E.	36·7	122·2
L.S.D. (P=0·05)	117	390
Variety	Uk48	Yellow Durum

Army worm caused considerable damage to some blocks. Control was achieved by spraying with Arkotine. Stalk borer (*Chilo sp.*) also attacked the maize. DDT dusting appeared to give little control.

Pure stand cotton made outstandingly better vegetative growth than interplanted, and gave a higher percentage of top grade.

Trials at Kibarani.

In the Kibarani variety trial Uk48 (829 lb./acre seed cotton) significantly outyielded N17 (587 lb.), but Uk51 (780 lb.) just failed to do so. As at Msabaha the two Uk varieties showed better resistance to jassid than N17. One unusual feature of this experiment was the very low proportion of A grade cotton (average 24%). Stainer populations during the season were fairly large and may have been responsible for the high percentage of B grade. Owing to the late arrival of seed the planting date was delayed and higher yields would probably have been recorded with earlier planting.

A maize/cotton intercropping trial on similar lines to that at Msabaha gave no significant differences for cotton, but early interplanted maize significantly outyielded late interplanted.

Received July 1958.

T. BUNCLE AND CO. LTD., ARBROATH.